

SUPPORT FOR THE AMENDMENT

This Amendment amends Claims 1, 4, 6-7, 9, 11, 13, 16 and 18-19; and adds new Claim 21. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 21 is found in Claim 11. No new matter will be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-21 will be pending in this application. Claim 1 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides a high purity silica crucible, a method of producing the silica crucible, and a method of using the crucible to pull a silicon single crystal from a silicon melt. Specification [0001]. By applying a voltage between a mold containing the crucible and an arc electrode inside of the crucible, impurity metals contained in a melted silica glass layer on the inside of the crucible are moved to the outside of the crucible to increase the purity of the inside of the crucible. Specification at [0011]. The present invention's application of a voltage between a crucible and an electrode is not part of conventional methods. Specification at [0007]. When a silicon single crystal is pulled from a crucible produced by the electrolytic refining of the present invention, the high purity of the inner surface of the crucible allows a silicon single crystal having a high dislocation free ratio to be obtained. Specification at [0019].

Applicants thank the Examiner for the indication that Claims 1-10 and 13-20 are allowed. Office Action Summary at 5).

Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,989,021 ("Sato"). Sato discloses a quartz crucible having an opaque silica glass outer layer and a transparent silica glass inner layer. Sato at abstract. Sato discloses that transparent silica glass inner layer 4 is produced by passing second silicon dioxide powder 6 through a high temperature gas atmosphere 8 heated by heat source 5 formed by an arc discharge between carbon electrodes 51,52 positioned *inside* of the crucible. Sato at column 5, lines 36-52; Fig. 1.

However, Sato fails to suggest the Claim 11 limitation of "pulling the single silicon crystal from a silica glass crucible, wherein the silica glass crucible is produced according to the method of Claim 1". In the production method of Claim 1, "a purity of the melted silica glass layer is increased by applying a voltage **between a mold and an arc electrode** to move impurity metals being contained in the melted silica glass layer to the peripheral side". As discussed above, the method of Claim 1 results in a high purity silica glass crucible from which a silicon single crystal can be pulled that has a high dislocation free ratio. Specification at [0019]; Tables 2-5 and 7-10. Because Sato fails to suggest Claim 1's method of producing a crucible, and Claim 1's method results in a crucible from which superior silicon single crystal can be pulled, Sato fails to suggest Claim 11's pulling method or Claim 12's silicon single crystal pulled by the method of Claim 11. Thus, the rejection over Sato should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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